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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/769,017	01/30/2004	Takeo Tanaami	082726A	7966

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EXAMINER	
TURK, NEIL N	

ART UNIT	PAPER NUMBER
1773	

NOTIFICATION DATE	DELIVERY MODE
03/29/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentmail@whda.com

Office Action Summary	Application No.	Applicant(s)	
	10/769,017	TANAAMI, TAKEO	
	Examiner	Art Unit	
	NEIL TURK	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 February 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *33,37-40 and 42-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *33,37-40 and 42-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Remarks

This Office Action fully acknowledges Applicant's remarks filed on February 17th, 2011. Claims 33, 37-40, and 42-44 are pending. Claims 1-32, 34-36, and 41 have been canceled.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 17th, 2011 has been entered.

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The specification does not provide antecedent basis for the recitation of the separating means for separating, as recited in independent claims 33 and 40. Examiner asserts that the specification makes clear in the abstract that a biochip reader is provided wherein spectroscopic information of a sample under analysis is arranged in spaces between images of the sample arranged on a biochip.

Further, the specification provides disclosure to means for arranging multiple pieces of spectroscopic information of the samples under analysis in spaces between the images of the samples in paragraph [0035]. It is also seen through paragraphs [0065-0070] that the elements of a grating G, dichroic mirrors 31-33 with different transmission wavelengths, and a Fourier spectrometer 81 (akin to claims 39 and 44) all provide analogous structures for diffracting the emitted fluorescent light onto the detector element. However, the specification does not provide antecedent basis for the current language used in the claims in describing the separating means for separating. Applicant is advised to amend the claims to utilize language coincident with the specification.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 33, 37-40, and 42-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recitation toward a plurality of dichroic mirrors included in the microscopic optical system as recited in independent claims 33 and 40 is unclear. Examiner asserts that from Applicant's disclosure, which includes the figures thereof, only a single dichroic mirror is provided in the microscopic optical system. This can be seen in figures 6, 10, 12, 13, 15, 16, and 20, and their accompanying description within the specification. Examiner notes that

the plurality of dichroic mirrors 31-33 are drawn to a particular embodiment of the separating means for separating and are a separate element from the dichroic mirror that is a part of the microscopic optical system. Additionally, within independent claims 33 and 40, the recitation toward the "separating means for separating" references "said dichroic mirror" which further points to the inclusion of only a single dichroic mirror. For purposes of Examination the claims will be taken to read as providing a dichroic mirror within the microscopic optical system.

Clarification is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Claims 33, 37, 38, 40, 42, and 43 are rejected under 35 U.S.C. 102(e) as being anticipated by Dietz et al., (US Patent no. 6,603,537), hereinafter "Dietz".

Dietz teaches a biochip on which a plurality of samples are provided as spots or an array in a two dimensional manner on a surface of said biochip (see for example col. 2, lines 15-16; lines 16-55, col. 7). and a biochip reader.

The biochip reader of Dietz comprises:

a microscopic optical system consisting of a scanning confocal optical system, and provided with a dichroic mirror 58 for irradiating excitation light on a biochip and separating fluorescent light emitted by the biochip from the excitation light (line 60, col. 6 – line 16, col. 7; fig. 2);

a light source 50 which irradiates excitation light simultaneously on a plurality of samples provided as spots or an array (capillaries) in a two dimensional manner on a surface of a biochip, and which causes the plurality of samples to emit fluorescent light different in wavelength from the excitation light;

a single optical detector 76 which forms optical images of all the samples arranged on the surface of the biochip within an acceptance surface thereof, and which detects the fluorescent light emitted by the plurality of samples as spectroscopic information; and

a separating means 72 for separating the fluorescent light emitted by the samples and developing the fluorescent light as the spectroscopic information at different locations on the single optical detector according to wavelength, the spectroscopic information being developed between images of adjacent samples

among the plurality of samples (see for example col. 7, lines 1-16, 38-43), wherein the spectroscopic information is detected by the single optical detector in a two dimensional manner (see for example col. 6, line 12 et seq.)

Regarding claims 37 and 42, the biochip reader of Dietz further comprises a shield having a plurality of apertures aligned with positions of each of the plurality of samples, wherein the area of spectroscopy is restricted by the apertures (see for example col. 13, lines 30-42).

As to claims 38 and 43, wherein the light source of Dietz comprises means for directing the excitation light 56 (lens) to be irradiated onto one side of the biochip (outer capillary surface) which is opposite to a side surface wherein the plurality of samples (cells or particles) are arranged (fig. 2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 39 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dietz in view of Li (US 2003/0223059).

Dietz has been discussed above.

Dietz does not specifically disclose that the separating means for separating comprises a grating, a dichromatic mirror comprised of a plurality of dichromatic mirrors, each having different wavelength characteristics, or a Fourier spectrometer.

Li discloses a multi-wavelength array reader for biological assay that includes a transmission grating beam splitter that provides to separate fluoresced light into multiple order diffractions bands and wavelengths (abstract; [0003]). Li discloses that a transmission grating beam splitter (TGBS; separating means comprising a grating) provides to separate the fluoresced light into different components to be detected by the detector (par. [0074]; fig. 5).

It would have been obvious to modify Dietz to utilize a separating means for separating comprising a grating such as taught by Li as the TGBS of Li provides an analogous optical component to the dichroic filter 72 of Dietz that would suitably and predictably provide for a separation of the emitted fluorescence into multiple wavelengths for developing the images of the samples, as desired by Dietz.

Response to Arguments

Applicant's arguments, see pages 6-11, filed February 17th, 2011, with respect to the rejection of claims 33, 36, 37, 39-42, and 44 rejected under 35 USC 102(b) as being

anticipated by Tanaami (US 2001/0001581) and claims 33, 36, 39, 40, 41, and 44 rejected under 35 USC 102(e) as being anticipated by Li (US 20030223059) have been fully considered and are persuasive. The rejections of the above-noted claims have been withdrawn in view of Applicant's arguments and amendments made to the claims.

Applicant's arguments, see pages 6-11, filed February 17th, 2011, with respect to the rejection(s) of claim(s) 33 and 36-44 under 35 USC 102(e) as being anticipated by Dietz have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Dietz.

Applicant argues that Dietz observes spectroscopic information on each measuring point while scanning all the spots of the samples, and Dietz does not observe images on the entire surface of the biochip at a time as in the claimed invention. By this, Applicant argues that Dietz does not disclose or suggest that spectroscopic information is developed between images of samples.

Examiner argues that, as discussed above in the body of the action, Dietz discloses that spectroscopic information is developed between images of samples. As disclosed in lines 37-43, Dietz provides that a plurality of samples provided as spots each generate a 2-D image and the images from each spot either do not overlap or overlap slightly. Dietz then discloses that when the scan is complete, the individual images can be joined together by a computer to provide a single seamless image. Here, it is seen that the spectroscopic information is developed between images of samples

by the disclosure of Dietz to joining the non-overlaping/slightly-overlapping images of the spots to form a single seamless image.

Additionally, with regard to the newly amended independent claims 33 and 40, a new grounds of rejection with respect to Dietz has been established. In view of the amendments to the claims, Examiner asserts that the now-claimed dichroic mirror of the microscopic optical system corresponds to the dichroic mirror 58 of Dietz. Additionally, by the amendments made to independent claims 33 and 40, the separating means for separating now corresponds to the dichroic filter 72 of Dietz, as the dichroic filter 72 is disclosed as separating the emission light into separated wavelength portions, as discussed in col. 7, lines 7-16. Examiner maintains, as discussed above with respect to the separating means for separating, that the dichroic filter 72 of Dietz provides to separate spectroscopic information as claimed.

With regards to claims 39 and 44, Examiner asserts that a new grounds of rejection has been applied over the claims under 35 USC 103(a) as being unpatentable over Dietz in view of Li, as discussed above in the body of the action.

Additionally, an objection to the specification has been made for the specification lacking antecedent basis for the claim language used with respect to the separating means for separating, as recited in independent claims 33 and 40.

Further, claims 33, 37-40, and 42-44 are rejected under 35 USC 112, 2nd paragraph in view of the amendments made to the claims, as discussed above in the body of the action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NEIL TURK whose telephone number is (571)272-8914. The examiner can normally be reached on M-F, 9-630.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NT

/Neil Turk/
Patent Examiner
Art Unit 1773